

**AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions, and listings of claims in the application:

1. (Currently Amended) A plastisol formulation, comprising:  
a) a plasticizer or mixture of plasticizers; and  
b) a mixture of polymer particles comprising at least two components A and B;  
c) at least one member selected from the group consisting of fillers, coupling agents, stabilizers, desiccants, rheological additives, hollow bodies and mixtures thereof;  
wherein said polymer particles comprising at least two components A and B have one of the following structures

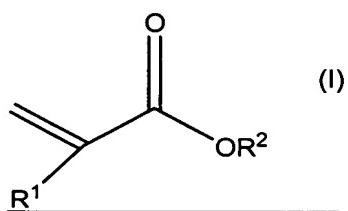
- ba) a 2-stage structure, a 3-stage structure or multi-stage structure, or  
bb) a gradient polymer structure;

wherein said component A comprises a polymer particle obtained by emulsion polymerization, said polymer particle having a core KA, an outermost shell S<sub>1</sub>A, a second shell S<sub>2</sub>A and a third shell S<sub>3</sub>A;

wherein said component B comprises a polymer particle comprising a core KB, an outermost shell S<sub>1</sub>B, a second shell S<sub>2</sub>B and a third shell S<sub>3</sub>B;

wherein said core KA comprises the following monomers in copolymerized form:

K A a) 10 to 50 percent by mass, relative to the core, of (meth)acrylates of Formula I



wherein

R<sup>1</sup> = H or CH<sub>3</sub>; and

R<sup>2</sup> = CH<sub>3</sub> or CH<sub>2</sub>CH<sub>3</sub>;

K A b) 50 to 90 percent by mass, relative to the core, of compounds of Formula I;

wherein R<sup>1</sup> = H or CH<sub>3</sub>, and R<sup>2</sup> is selected from the group consisting of propyl,

isopropyl, tert-butyl, n-butyl, isobutyl, pentyl, hexyl, iso-octyl, octyl, cyclohexyl, 2-ethylhexyl, octadecyl, dodecyl, tetradecyl, oleyl, decyl, benzyl, cetyl, isobornyl, neopentyl, cyclopentyl, undecyl, and docosyl;

K A c) 0 to 10 percent by mass, relative to the core, of compounds that can be copolymerized with the monomers KA a) and/or KA b); and

K A d) 0.1 to 9.9 percent by mass of monomers containing an epoxy group;

wherein said outermost shell S<sub>1</sub> A comprises the following monomers in copolymerized form:

S<sub>1</sub> A a) 70 to 100 percent by mass of monomers of Formula I,

wherein

R<sup>1</sup> = H or CH<sub>3</sub>, and

R<sup>2</sup> = CH<sub>3</sub> or CH<sub>2</sub>CH<sub>3</sub>;

S<sub>1</sub> A b) 0 to 30 percent by mass of the monomer of Formula I, wherein the R<sup>1</sup> and R<sup>2</sup> have the meaning indicated for K A b); and

S<sub>1</sub> A c) 0 to 10 percent by mass of a monomer copolymerized with S<sub>1</sub> A a) and S<sub>1</sub> A b);

wherein said second shell S<sub>2</sub> A comprises of the following monomers in copolymerized form:

S<sub>2</sub> A a) 20 to 80 percent by mass of monomers of Formula I, wherein

Reply to the Office Action dated: June 15, 2005

R<sup>1</sup> = H or CH<sub>3</sub>, and

R<sup>2</sup> = CH<sub>3</sub> or CH<sub>2</sub>CH<sub>3</sub>;

S<sub>2</sub> A b) 20 to 70 percent by mass of the monomer of Formula I, wherein

R<sup>1</sup> = H or CH<sub>3</sub>, and

R<sup>2</sup> has the same meanings as for K A b); and

S<sub>2</sub> A c) 0.1 to 9.9 percent by mass of monomers containing an epoxy group;

wherein said third shell S<sub>3</sub> A comprises the following monomers in copolymerized form:

S<sub>3</sub> A a) 30 to 100 percent by mass of monomers of Formula I, wherein:

R<sup>1</sup> = H or CH<sub>3</sub>, and

R<sup>2</sup> = CH<sub>3</sub> or CH<sub>2</sub>CH<sub>3</sub>;

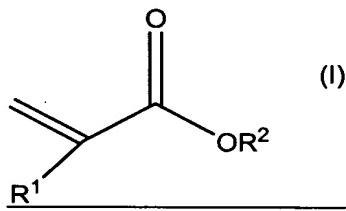
S<sub>3</sub> A b) 0 to 70 percent by mass of the monomer of Formula I, wherein:

R<sup>1</sup> = H or CH<sub>3</sub>, and R<sup>2</sup> has the same meanings as for K A b); and

S<sub>3</sub> A c) 0 to 10 percent by mass of a monomer that can be copolymerized with S<sub>1</sub>A) to S<sub>1</sub>A), the monomers having the meanings indicated for K A c);

wherein said core KB comprises the following monomers in copolymerized form:

K B a) 10 to 50 percent by mass, relative to the core, of (meth)acrylates Formula I



wherein

R<sup>1</sup> = H or CH<sub>3</sub>; and

R<sup>2</sup> = CH<sub>3</sub> or CH<sub>2</sub>CH<sub>3</sub>;

Reply to the Office Action dated: June 15, 2005

K B b) 50 to 90 percent by mass, relative to the core, of compounds of Formula I,  
wherein R<sup>1</sup> and R<sup>2</sup> have the meanings indicated for K A b);

K B c) 0 to 10 percent by mass, relative to the core, of compounds copolymerizable  
with the monomers KB a) and/or KB b); and

K B d) 0.1 to 9.9 percent by mass of monomers that contain nucleophilic groups,

S<sub>1</sub> B a) 70 to 100 percent by mass of monomers of Formula I, wherein:

R<sup>1</sup>=H or CH<sub>3</sub>, and

R<sup>2</sup>=CH<sub>3</sub> or CH<sub>2</sub>CH<sub>3</sub>;

S<sub>1</sub> B b) 0 to 30 percent by mass of the monomer of Formula I, wherein:

R<sup>1</sup> and R<sup>2</sup> have the meaning indicated for K A b);

S<sub>1</sub> B c) 0 to 10 percent by mass of a monomer copolymerizable with S<sub>1</sub> B a) and/or  
S<sub>1</sub> B b); and

S<sub>1</sub> B d) 0.1 to 9.9 percent by mass of monomers that contain nucleophilic groups;

wherein said second shell S<sub>2</sub> B of polymer B comprises the following monomers in  
copolymerized form:

S<sub>2</sub> B a) 20 to 80 percent by mass of monomers of Formula I, wherein:

R<sup>1</sup>=H or CH<sub>3</sub>, and

R<sup>2</sup>=CH<sub>3</sub> or CH<sub>2</sub>CH<sub>3</sub>;

S<sub>2</sub> B b) 20 to 70 percent by mass of the monomer of Formula I, wherein:

R<sup>1</sup>=H or CH<sub>3</sub>, and R<sup>2</sup> has the same meanings as for K B b); and

S<sub>2</sub> B c) 0.1 to 9.9 percent by mass of monomers that are capable of a nucleophilic  
reaction with the epoxide-containing monomer of polymer A;

wherein said third shell S<sub>3</sub>B comprises of the following monomers in copolymerized  
form:

S<sub>3</sub> B a) 30 to 90 percent by mass of monomers of Formula I, wherein:

R<sup>1</sup>=H or CH<sub>3</sub>, and

R<sup>2</sup>=CH<sub>3</sub> or CH<sub>2</sub>CH<sub>3</sub>;

S<sub>3</sub> B b) 10 to 70 percent by mass of the monomer of Formula I, wherein:

R<sup>1</sup>=H or CH<sub>3</sub>, and R<sup>2</sup> has the same meanings as for K B b);

S<sub>3</sub> B c) 0 to 10 percent by mass of a monomer copolymerizable with S<sub>1</sub>B a) and/or S<sub>1</sub>B b), the monomers having the meanings indicated for K A c); and

S<sub>3</sub> B d) 0.1 to 9.9 percent by mass of monomers that contain nucleophilic groups.

2. (Canceled)

3. (Currently Amended) The plastisol formulation according to claim 1, wherein a mixing ratio of components A and B ranges between 100:0 80:20 and 20:80 parts by weight.

4. (Original) The plastisol formulation according to claim 1, wherein a mixing ratios relative to the total mass of the component A have the following values:

(K A) 20 to 90 percent by mass,

(S<sub>1</sub>A) 10 to 80 percent by mass,

(S<sub>2</sub>A) 0 to 70 percent by mass, and

(S<sub>3</sub>A) 0 to 70 percent by mass.

5. (Original) The plastisol formulation according to claim 1, wherein a mixing ratio relative to the total mass of the component B has the following values:

(K B) 20 to 100 percent by mass,

(S<sub>1</sub>B) 0 to 80 percent by mass,

(S<sub>2</sub>B) 0 to 70 percent by mass, and

(S<sub>3</sub>B) 0 to 70 percent by mass.

6. (Original) The plastisol formulation according to claim 1, wherein said component A represents a gradient polymer, wherein the proportions by mass relative to the polymer A are as follows:

(K A) 0 to 90 percent by mass, and

(S A) 10 to 100 percent by mass.

7. (Original) The plastisol formulation according to claim 1, wherein said component B represents a gradient type, wherein the proportions by mass relative to the polymer B are as follows:

(K B) 0 to 90 percent by mass,

(S B) 10 to 100 percent by mass.

8. (Original) A method for coating of a metal sheet, comprising:

contacting a metal sheet with the plastisol according to claim 1.

9. (Original) A metal sheet coated with a plastisol formulation according to claim 1.

10. (Original) A vehicle, at least partly coated with a plastisol formulation according to claim 1.

11. (Original) A method for underbody protection of vehicles, comprising:

contacting a underbody of a vehicle with the plastisol formulation according to claim 1.

Application No.: 10/600,832

Reply to the Office Action dated: June 15, 2005

**BASIS FOR THE AMENDMENT**

Claim 2 has been canceled.

No new matter is believed to have been added by entry of this amendment. Entry and favorable reconsideration are respectfully requested.

Upon entry of this amendment Claims 1 and 3-11 will now be active in this application.

**INTERVIEW SUMMARY**

Applicants wish to thank Examiner Huang and Supervisory Examiner Teskin for the helpful and courteous discussion with Applicants' Representative on July 28, 2005. During this discussion it was noted that the limitations of Claims 2 will be include in Claim 1 and that the ratio in Claim 3 will be amended as done in the present amendment. Regarding Claims 6 and 7 it was noted that even though A or B may be "0" in the core (KA or KB respectively) there are still required to be present because they are in the shell (SA or SB, respectively). The Examiners appeared to agree.